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METHODS OF MEASURING THE CONCENTRATION OF WEALTH.

By M. O. Lorenz.

There may be wide difference of opinion as to the significance of a very unequal distribution of wealth, but there can be no doubt as to the importance of knowing whether the present distribution is becoming more or less unequal. For this purpose we need some method of interpreting such statistics as we have that show the condition of a country at different epochs or of different countries at the same epoch; that is, we wish to be able to say at what point a community is to be placed between the two extremes,—equality, on the one hand, and the ownership of all wealth by one individual on the other. It is the purpose of the present article to discuss some of the methods that have been used, and to suggest an additional one, but not to enter upon a discussion of the reliability of the data used for illustration. Let us consider first the numerical measures, taking up later the graphic representations.

It has been a common practice to construct a table of class divisions of wealth or income with the per cent. of the population falling within each class. An increase in the percentage of the middle class is supposed to show a diffusion of wealth. For example, the following table of income tax returns in England is supposed to show a "tendency of wealth among

the income-tax paying classes to distribute itself in smaller amounts in a larger number of hands":*—

INCOME TAX ASSESSMENTS UNDER SCHEDULE D.

	1877.	1886.	Per Cent. of Increase or Decrease.
Between £150 and £500	285,754	347.021	21.4 (Increase)
" 500 " 1,000	32,085	32,033	nil
" 1,000 " 5,000	19,726	19,250	2.5 (Decrease)
Over 5.000	3,122	3,048	2.3 (Decrease)

It is impossible to tell from such a table whether there has been a concentration or diffusion of wealth because it might be true that the incomes over five thousand pounds, although a smaller proportion of the total number in the second epoch, nevertheless constitute a much larger proportion of the total income.† It should be added, however, that comparisons of fixed classifications are of use in noting the absolute increase or decrease in wealth on the part of the lower classes. It is important to know, for example, that 29 per cent. in 1892 and 39 per cent. in 1901 of the people of Prussia (according to the income tax returns) had more than nine hundred marks a year income.‡

Another method of interpreting a table like the one just quoted has been suggested by Dr. Julius Wolf.§ Instead of paying attention to the change in the percentage of members in a certain class, we should observe, he says, the movement of persons from one class to another. To illustrate his way of attacking the problem, he gives the following table of the number of tax-payers in the Canton Zürich (p. 234):—

* Goschen, *Journal of the Royal Statistical Society*, 1887, vol. l., p. 600.

† For a further discussion of this point, see Ely, "Evolution of Industrial Society." p. 259.

‡ *Zeitschrift des königlich preussischen statistischen Bureaus*, 1902, p. 246.

§ "Sozialismus und kapitalistische Gesellschaftsordnung" (being Vol. I of "System der Sozialpolitik"), Stuttgart, 1892.

Class.	1848.	1888.
I 100–2,000 Fr.	25,991	21,108
II. 2,100–20 000	13,959	24,406
III. 20,100–25,000	2,409	6,584
IV. 25,000 and over	81	484

According to the method which he is criticising, the statement would be made that there has been an increase in the second class of 75 per cent.. in the third of 174, and in the fourth of 500. This would look unfavorable, as the increase in the lowest class has been least. But, according to this method, we find that there has been a movement between classes, as follows:—

I to II	14,622, or 56 per cent.	of those originally in class I.
II to III	5,578 " 33 " " " "	" " " II.
III to IV	403 " 17 " " " "	" " " III.

This makes it appear that the lowest classes have progressed most rapidly. He proceeds in a similar manner (p. 239) with regard to the wealth of the various classes. Instead of calculating the per cent. of the total wealth falling in each class, he observes the per cent. of the increase in the total income of a community that accrues to each class. Taking statistics of incomes for Prussia for 1876 and 1888, he finds that the lowest class got 22.1 per cent. of the increase in the total Prussian income, and the other classes (proceeding upward) participated as follows: 30.5, 18.1, 16.7, 8.8, and 3.7. This, he thinks, indicates a diffusion of wealth.

Wolf's method of interpretation is fallacious. Without stopping to consider minor objections, it will be sufficient to show the erroneous results to which it leads by the following hypothetical case. Let the individuals of a certain group possess wealth as indicated in the following table:—

Class. (Dollars.)	Wealth of each Individual in each Class. (Dollars.)	Number of Individuals.
0 to 9	1, 3, 5, 7, 9	5
10 to 24	10, 12, 14, 16, 18	5
25 to 49	25, 28, 31, 34, 37	5
50 to 99	50, 60, 70, 80, 90	5
100 and over	100, 110, 120, 130, 140	5

Now imagine the wealth of each specific individual doubled. The relation between the wealth of individuals has not changed, and hence the degree of concentration must be the same.* The classification will now be as follows:—

Class. (Dollars.)	Wealth of each Individual. (Dollars.)	Number.
0 to 9	2, 6	2
10 to 24	10, 14, 18, 20, 24	5
25 to 49	28, 32, 36	3
50 to 99	50, 56, 62, 68, 74	5
100 and over	100, 120, 140, 160, 180 200, 220, 240, 260, 280	10

We find that the movement between classes has been as follows:—

	Number.	Per Cent. of those originally in the Class from which the Movement took Place.
I to II	3	60
II to III	3	60
III to IV	5	100
IV to V	5	100

* It has been objected that doubling incomes does not leave individuals in the same relation to each other because (owing to the law of diminishing utility) doubling a rich man's income does not add proportionately as much to his well-being as in the case of a poor man. But this does not affect the argument above, because, according to this view, doubling incomes would tend to diffuse enjoyment, not concentrate it, as Wolf's method would indicate. In the present problem no error will result from confining our attention to nominal incomes.

This indicates a concentration, which we know has not taken place. The root fallacy here is the ignoring of the change in the meaning of a fixed classification with a change in general wealth. Again, if we examine, as he does, the sharing of various classes in the increase in the community's wealth, we find the first class actually lost, the second got 0.1 per cent. of the increase, the third and fourth lost, and the fifth 99.9 secured per cent. Yet there was no change in the concentration.

It is apparent that we need to take account simultaneously of changes in wealth and changes in population. Here also several erroneous methods have been used. Dr. Soetbeer sought to show that there had been no concentration in Prussia between 1876 and 1888 because "the average income of tax-payers in the higher classes had shown no tendency to increase."* But that average income is no safe criterion is shown by the hypothetical case just presented, where the average income of the highest class shows a marked increase, although there was no change in the degree of concentration.

Again, the "triple measure" presented by Mr. George K. Holmes† is not trustworthy. According to this we are to note, first, the average wealth in order to get the plane of distribution, or the relation of the whole population to its total mass of wealth; secondly, the per cent. of people owning wealth shows the "width of distribution"; and, finally, to find the state of the distribution among the possessing class, he takes the median of the number of owners and the median of the amount of wealth, and observes the distance between these medians (p. 146). That distance is the measure of the inequality of the distribution. To the first two parts of this triple measure no objection can be taken, but the last part would lead to error. Its method of application is shown by the following hypothetical case given in the article: A group of 64 persons is divided into 15 classes according to their wealth:—

* *Jahrbücher für Nationalökonomie und Statistik*, 1889, vol. lii. p. 420.

† *Publications of the American Statistical Association*, 1892–93, vol. iii., p. 141.

Class . . .	$1	$2	$3	$4	$5	$6	$7	$8	$9	$10	$11	$12	$13	$14	$15
Number . .	1	2	3	4	5	6	7	8	7	6	5	4	3	2	1
Wealth of each class	1	4	9	16	25	36	49	64	63	60	55	48	39	28	15

Here the median of the number is in the centre of the eighth class, or $8.50, and the median of the amount of wealth is in the ninth class, or at the point represented by $9.82, and the difference between the two is $1.32, which is the measure of concentration. The error in this measure lies in the fact that the distance between the medians varies not only with the degree of concentration (for it does this), but also with changes in the total wealth. Let us suppose each individual's wealth in the above case is doubled. The two medians would now be $17 and $19.65, and their difference $2.65, showing an increase in concentration, but by hypothesis the relative position of the members has not changed.

Another method of taking account of changes both in wealth and of population is simply to state in a table the per cent. of total wealth and of total population in each class in each epoch. The following table,* for example, does this with regard to Prussian incomes in the years 1892 and 1901:—

Class.	1892.		1901.	
	Per Cent. of Number.	Per Cent. of Total Income.	Per Cent. of Number.	Per Cent. of Total Income.
Under 900	70.1	41.2	60.5	31.7
900–3,000	26.0	30.0	34.8	35.3
3,000–6,000	2.5	8.6	3.0	9.3
6,000–9,500	.7	4.2	.8	4.5
9,500–30,500	.6	7.4	.7	8.1
30,500 and over	.1	8.6	.2	11.1
	100.0	100.0	100.0	100.0

*Constructed from data in the *Zeitschrift* of the Prussian Statistical Bureau, 1902, the incomes below 900 marks being estimated on the assumption that their average was 700 in both epochs, and that the persons assessed are the same per cent. of the total number of income-receivers as the taxable part of the population (*Einkommensteuerpflichtiger Theil*) is of the total population.

What can such a table tell us? We can make such statements as the following: 70 per cent. of the number in 1892 had 41 per cent. of the income, and 60 per cent. of the number in 1901 had 31 per cent. of the income; but does this indicate concentration or diffusion? If we knew what per cent. of the income was received in 1901 by 70, 26, 2.5, 0.7, 0.6, and 0.1 per cents., respectively, of the number, we could make a comparison. This, it is true, is not a theoretical difficulty, but a practical one due to the insufficiency of data, to be encountered by any method. But suppose we had complete data, could we then interpret the results by this method? The difficulty would be in attempting to comprehend the significance of changes in half a dozen classes, especially when some would indicate diffusion and some concentration. However, we can always arrive at definite though very general results by merely reducing the number of classes to two, the richer and the poorer halves of the community, and noting changes in their proportion of the total income or wealth.* If the poorer half has acquired a larger proportion of the total income, we should probably be warranted in saying that there had been on the whole a movement toward equality. It is apparent, however, that such a measure does not tell the whole story. It covers up some of the changes that may be going on within each half.

The objection that the foregoing method does not tell the whole story is obviated *in part* by Dr. T. S. Adams † in applying to the present problem the measures of dispersion suggested by Mr. A. L. Bowley.‡ For example, assuming the members of a community arranged in order according to their wealth, we find the first and second quartiles, and divide their difference by their sum. This quotient will vary from 0 to 1, and the nearer 1, the greater the concentration. This is the best numerical measure that has as yet been sug-

* Suggested in Ely's "Evolution of Industrial Society," p. 257.

† Adams and Sumner, "Labor Problems," pp. 534 and 538.

‡ "Elements of Statistics," second edition, p. 136.

gested, although it may also hide some of the changes that are going on.

Turning now to the graphic measures, a simple plotting of wealth along one axis and the numbers of the population along another is not satisfactory for the reason that changes in the shape of the curve will not show accurately changes in the relationships of individuals. To escape this objection, one naturally resorts to logarithmic curves. Professor Pareto, in his "Cours d'Économie Politique,"* does this, but in an erroneous way. He represents logarithms of class divisions in wealth along one axis, and the logarithms of the number of persons having more than each class division along the other. The error in this procedure lies in adhering to a fixed classification for two epochs. The number of persons having more than, say, $10 in each of the two periods of time is, as we have seen, of no significance in the question of degree of concentration when the per capita wealth of the community is growing. It will be found, for example, that plotting such curves for the hypothetical case given on page 212 shows a steeper curve for the second epoch. The method is especially inapplicable to data in which the highest class is given as those having more than a certain amount (as in the table on page 214); for, imagine a community in which the wealth is nearly equally distributed, and then assume that the richest individual becomes a multi-millionaire, with no change in the wealth of the remainder. Professor Pareto's curve would tell us nothing about this change.

If one wishes to use logarithmic curves, the following method would be better: Measure along the horizontal axis cumulated per cents. of the population from poorest to richest, and along the vertical axis logarithms of the *cumulated amounts* of wealth held by the successive per cents. of the population from poorest to richest. In interpreting these curves, it is necessary to pay attention solely to their shape, and to ignore the actual distance from the base line. The

* Vol. ii. p. 304.

steeper the curve, the greater the concentration. It should be noted that according to this method an equal distribution does not give a horizontal line.

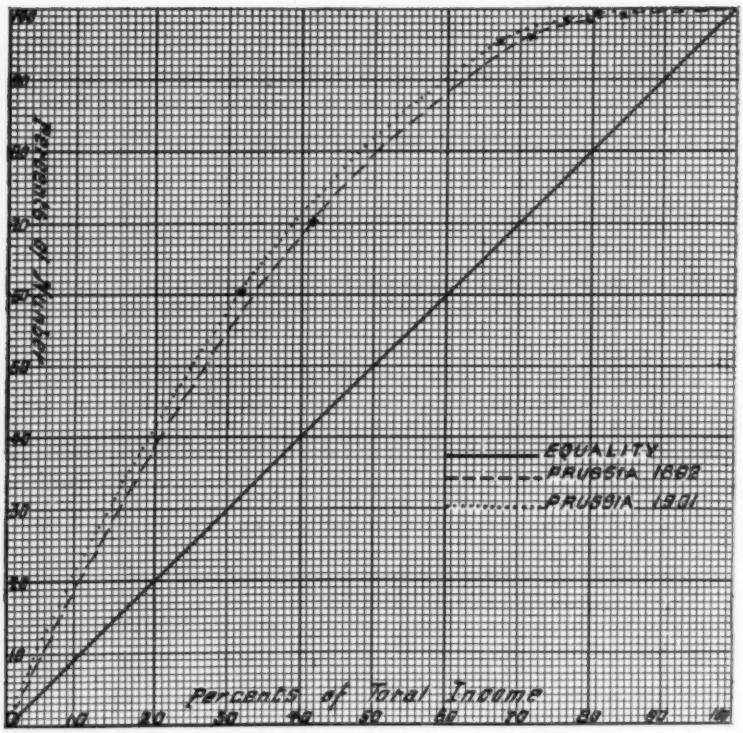
However, logarithmic curves are more or less treacherous. Forgetting that they are logarithms, we are apt to think of them as absolute amounts, when plotted. For this reason it is believed that the following graphic method will be found more satisfactory. It takes account of changes in wealth and population, thus putting upon a comparable basis any two communities of the most diverse conditions. Where guessing is necessary, owing to insufficient data, it enables us to do this guessing in the most impersonal way. The method is as follows:—

Plot along one axis cumulated per cents. of the population from poorest to richest, and along the other the per cent. of the total wealth held by these per cents. of the population. To illustrate, take a population in which wealth is distributed equally. No matter what the average wealth or size of the population, we should always plot the following sets of figures:*—

The poorest	1	per cent.	of the	population	have	1	per cent.	of the	wealth.										
"	"	2	"	"	"	"	"	"	2	"	"	"	"	"					
"	"	3	"	"	"	"	"	"	3	"	"	"	"	"					
		etc.									etc.								

This will give a straight line. With an unequal distribution, the curves will always begin and end in the same points as with an equal distribution, but they will be bent in the middle; and the rule of interpretation will be, as the bow is bent, concentration increases. If we plot in this way the figures for Prussian incomes given on page 214, we get the following results:—

* In practice the method will not be found laborious, because it is not necessary to plot each per cent.

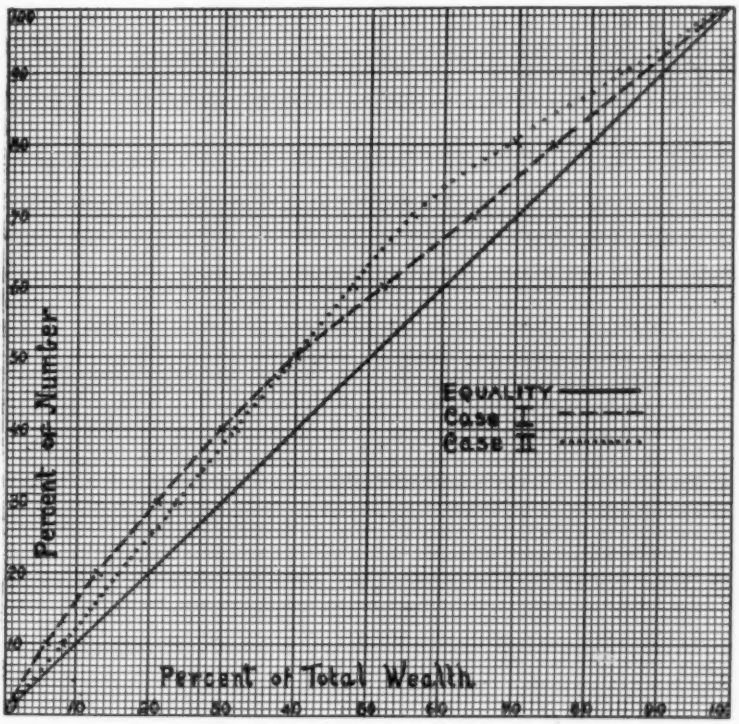


It is evident at a glance that the figures for 1901 show a greater concentration than those for 1892.

The curves may not always give so clear an answer as in the previous illustration, because opposing tendencies may exist at the same time, but the diagram will always tell what has happened. To take an extreme case, let the following figures represent the distribution of $100 among a group of ten persons at two epochs:—

Case I	6	7	8	9	10	12	12	12	12	12
Case II	8	8	8	8	8	8	8	14	14	16

We get curves as follows:—



There has been a tendency toward an equal distribution in the lower half, but a contrary tendency in the upper half. Notice that we can tell from the diagram that in each case the poorest half of the community have 40 per cent., but the poorest two-thirds have a smaller per cent. of the total wealth in the second case.

HOMICIDE IN NEW HAMPSHIRE.

By Harry G. Nutt.

The period considered in this discussion of homicide in New Hampshire is thirty years, extending from 1873 to 1904. Recourse was had to the clerks of the county Superior Courts for lists of indictments, convictions, localities, and dates of homicides; to the State Prison records for the age and nativity of the murderers; to the lawyers who tried the cases, to the present clerks, and to contemporary accounts in the Concord *Monitor* and the Manchester *Mirror and Patriot* for the motive, weapon employed, and condition of the murderers.

Although the absolute number of homicides is too small to admit of a fine comparison between their frequency and the number of inhabitants in each county, the figures given in Table I should be used for reference. The population of the State since 1870 has increased by decades 9 per cent., 8.5 per cent., and 9.3 per cent. Two counties, Belknap and Carroll, show a decrease. The others have increased only through additions to their urban populations, being as they are in the throes of rural exodus. The old line rural families, representing superior stock physically and morally, are in course of rapid elimination, while the new families of native-born Americans immigrating to the rural districts from without the State are few in number, and represent a decidedly inferior stock. It is to the influx of foreign blood chiefly to her cities, but partly to her small towns, that New Hampshire owes her increase in population.

All indictments for murder and manslaughter, classified by counties and five-year periods appear in Table II. Not more than one indictment against an individual for the same crime is counted, but more than one indictment against dif-

ferent individuals for the same crime are counted. The dates refer to the commitment of the crimes, not to the legal action. The most populous counties are here shown to have the most indictments. Altogether there are 71 indictments for murder and 45 for manslaughter, which, divided by decades, gives us respectively for murder, 27, 22, and 22; for manslaughter, 6, 23, and 16; and for both, 32, 45, and 38. The record for manslaughter is better for the first decade than for the second and third, but better for the third than the second. Including the indictments for murder, and taking into account the increase in the population of the State, the last decade, compared not only with the second, but with the first, shows the better record.

Just as some cases of homicide are not followed by indictments, some indictments, as shown in Table III, are not followed by convictions. 37, or 31.9 per cent. of the individuals indicted, were not convicted. In two of these cases the respondents, being found insane, were committed to the State Asylum. The fact that among the convictions there has been a much smaller proportion of murder cases than among the indictments indicates a tendency to return a verdict or accept a plea of a less serious homicide than that charged to the respondent.

The distinction between the degrees of homicide in this table is as follows: murder in the first degree indicates malice aforethought and premeditation; murder in the second degree, malice aforethought and no premeditation; manslaughter in the first degree, killing in heat of blood or violent passion; manslaughter in the second degree, killing by gross negligence. (See New Hampshire *Public Statutes*, Chap. 278.) Six convictions of manslaughter appear on the records with the degree unspecified.

The most populous counties show the most convictions. In the State there have been 42 convictions for murder and 31 for manslaughter; or, by decades, 15, 14, and 13 for murder, 8, 17, and 12 for manslaughter, and 23, 31, and

25 for both. Thus, combining murder and manslaughter convictions, we find fewer in the last than the preceding decade, and, relative to the increasing population, fewer than in the first decade.

Table IV shows the indictments and convictions for those towns in each of which more than one indictment has been found. The populations given are for 1890, since the homicides were grouped chiefly about that year. These 17 towns, with 30.9 per cent. of the total population of the State, have had 53.4 per cent. of its indictments and 53.4 per cent. of its convictions. In about 175 towns no indictment has been found. Although the largest urban communities in the State appear at the head of this table, the extremely small number of cases against them compared with their population fail to justify the conclusion that the urban population in the State is specially addicted to homicide.

Table V shows the county in which each homicide was committed, with reference to the nativity of the convicted murderers, including as "murderers" persons convicted of manslaughter. Of these murderers 18, or 22.8 per cent., were foreign-born. The census of 1890 gives 19.2 per cent. of the total population of the State as foreign-born, and among the foreign-born the proportion of children incapable of homicide is, of course, very much larger than it is among the native-born. Hence it appears that the foreign-born have contributed less than their share rather than more to homicide in the State.

25, or 40.9 per cent., of the native-born convicted of homicide were not born in New Hampshire. Since the census of 1890 gives only 17 per cent. of the total population resident in New Hampshire as born in other States, the record of this particular class for homicide is comparatively black. This fact speaks for the inferiority of American immigrants to New Hampshire. Of the murderers born in the State more than half committed their crimes outside their native county.

Canada and Ireland, the only foreign countries to furnish more than a single murderer each, are most largely represented in the foreign-born population resident in the State. Of other States, Massachusetts, Vermont, and Maine, those in closest proximity, show the largest quotas.

A classification of convicted murderers by age and degree of homicide appears in Table VI. The single case of an age "unknown" is that of a boy committed to the Reform School instead of the State Prison.

In Table VII is shown the condition of the murderers, whether drunk or sober, with reference to the weapons which they employed. The weapon in one case of homicide, where death resulted from both clubbing and shooting, is given as a "firearm"; and in another case, where death resulted from kicking and clubbing, the weapon is given as a "club." Any hard implement used as a club is here considered a club. Among the homicides with weapon unspecified, one death resulted from a push from a wagon, one from a throw downstairs, one from setting fire with kerosene to clothing, three from poison, and six (infanticides) from drowning or strangulation.

From a careful examination of newspaper accounts of these New Hampshire homicides, the writer is convinced that no accurate classification of motives is possible. In the first place such accounts, with the exception perhaps of stenographic reports of trials, are for these data unreliable. In the second an exact determination of another man's unconfessed motive, practically impossible for any deed, is seldom more so than for a homicide. Here we enter that field of passion and unusual mental phenomena which must be reserved for psychological analysis.

TABLE I.

POPULATION OF NEW HAMPSHIRE BY COUNTIES.

County.	1870.	1880.	1890.	1900.
Belknap	17,681	17,948	20,321	19,526
Carroll	17,332	18,224	18,124	16,895
Cheshire	27,265	28,734	29,579	31,321
Coös	14,932	18,580	23,211	29,468
Grafton	39,103	38,788	37,217	40,844
Hillsboro	64,238	75,634	93,247	112,640
Merrimac	42,151	46,300	49,435	52,430
Rockingham	47,297	49,064	49,650	51,118
Strafford	30,243	35,558	38,442	39,337
Sullivan	18,058	18,161	17,304	18,009
New Hampshire	318,300	346,991	376,530	411,588

TABLE II.

INDICTMENTS.

County.	Murder.							Manslaughter.							Murder and Manslaughter. Total.
	1873–1878.	1878–1883.	1883–1888.	1888–1893.	1893–1898.	1898–1903.	Total.	1873–1878.	1878–1883.	1883–1888.	1888–1893.	1893–1898.	1898–1903.	Total.	
Belknap	1	1	–	–	–	–	2	–	–	1	1	1	2	5	7
Carroll	3	–	–	–	1	–	4	1	–	1	–	–	–	2	6
Cheshire	6	–	1	1	–	2	10	–	–	–	3	–	–	3	13
Coös	1	–	–	1	4	–	6	–	–	–	–	1	–	1	7
Grafton	3	–	1	5	–	–	9	–	–	–	–	2	–	2	11
Hillsboro	1	1	–	2	3	1	8	1	2	–	–	3	–	6	14
Merrimac	2	1	–	1	2	1	7	–	–	1	2	–	–	3	10
Rockingham	1	2	3	3	1	–	10	–	1	–	5	–	1	7	17
Strafford	1	3	2	2	3	3	14	–	–	4	3	1	4	12	26
Sullivan	–	–	–	–	–	1	1	–	1	1	1	–	1	4	5
New Hampshire	19	8	7	15	14	8	71	2	4	8	15	8	8	45	116

TABLE III.

CONVICTIONS.

County.	Murder.														Manslaughter.																					Murder and Manslaughter. Total.
	1873–1878.		1878–1883.		1883–1888.		1888–1893.		1893–1898.		1898–1903.		Total.		1873–1878.			1878–1883.			1883–1888.			1888–1893.			1893–1898.			1898–1903.			Total.			
	Degree.		Degree.		Degree.		Degree.		Degree.		Degree.		Degree.		Degree.			Degree.			Degree.			Degree.			Degree.			Degree.			Degree.			
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	*	1	2	*	1	2	*	1	2	*	1	2	*	1	2	*	1	2	*	
Belknap	–	1	1	–	–	–	–	1	–	–	–	–	1	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	4
Carroll	–	3	–	–	–	–	–	–	1	–	–	–	1	3	–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	2	–	6
Cheshire	–	1	–	–	–	–	–	1	–	–	1	1	1	3	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	6
Coös	–	1	–	–	–	–	–	1	–	2	–	–	–	4	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	3	–	–	7
Grafton	–	–	–	–	–	–	1	3	–	–	–	–	1	3	1	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1	1	1	7
Hillsboro	1	–	–	–	–	–	–	–	–	2	–	1	1	3	–	1	–	1	1	–	–	–	–	–	–	–	–	1	1	–	–	–	–	1	3	1	9
Merrimac	1	1	–	–	–	–	–	1	–	1	1	–	2	3	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	1	1	–	7
Rockingham	–	1	–	1	1	–	–	3	–	–	–	–	1	5	–	–	–	–	–	–	1	1	–	1	2	–	–	–	–	–	1	–	–	2	4	–	12
Strafford	1	–	–	2	–	–	1	1	–	1	1	–	3	4	–	–	–	–	–	–	1	2	2	–	3	–	–	1	–	–	2	–	–	1	8	2	18
Sullivan	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	1	3
New Hampshire	3	8	1	3	1	–	2	11	1	6	3	3	11	31	2	3	–	1	1	1	3	5	2	2	5	–	3	2	2	–	4	1	11	20	6	79

* Unspecified.

TABLE IV.

TOWNS WITH TWO OR MORE INDICTMENTS EACH.

Town.	Population in 1890.	Indictments.							Convictions.						
		1873–1878.	1878–1883.	1883–1888.	1888–1893.	1893–1898.	1898–1903.	Total.	1873–1878.	1878–1883.	1883–1888.	1888–1893.	1893–1898.	1898–1903.	Total.
Manchester (Hills.) . .	44,126	–	1	–	1	4	–	6	–	1	–	–	3	–	4
Nashua (Hills.)	19,311	1	1	–	–	–	1	3	1	1	–	–	–	1	3
Concord (Mer.)	17,004	1	–	–	–	1	–	2	1	–	–	–	–	–	1
Dover (Strat.)	12,790	–	1	1	1	1	5	9	–	–	–	1	1	2	4
Portsmouth (Rock.) . . .	9,827	–	1	3	1	–	–	5	–	–	3	–	–	–	3
Keene (Chesh.)	7,446	4	–	–	3	–	1	8	1	–	–	–	–	1	2
Rochester (Strat.) . . .	7,396	–	–	3	1	–	1	5	–	–	3	1	–	1	5
Somersworth (Strat.) . .	6,207	–	–	2	2	1	–	5	–	–	2	2	1	–	5
Laconia (Bel.)	6,143	1	1	1	–	–	2	5	1	1	–	–	–	1	3
Berlin (Coös)	3,729	–	–	–	1	2	–	3	–	–	–	1	2	–	3
Rollinsford (Strat.) . .	2,003	–	–	1	–	1	–	2	–	–	1	–	–	–	1
Plymouth (Graft.) . . .	1,852	1	–	1	–	1	–	3	1	–	1	–	–	–	2
Wilton (Hills.)	1,850	1	–	–	–	1	–	2	1	–	–	–	–	–	1
Gorham (Coös)	1,710	–	–	–	–	2	–	2	–	–	–	–	2	–	2
Seabrook (Rock.) . . .	1,672	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ossipee (Car.)	1,630	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Durham (Strat.)	871	1	1	–	–	–	–	2	1	1	–	–	–	–	2
Total	145,567	10	6	12	10	14	10	62	7	4	10	5	9	6	41

TABLE V.

NATIVITY OF CONVICTED MURDERERS.

County of Crime.	Number of Murderers.	Nativity.												
		New Hampshire.			Massachusetts.	Vermont.	Maine.	New York.	Pennsylvania.	Ireland.	Canada.	Other Foreign Countries.	Total Native United States.	Total Foreign born.
		Same County.	Other County.	Total.										
Belknap . .	4	–	–	–	–	1	–	–	–	1	1	1	1	3
Carroll . . .	6	2	3	5	–	–	–	–	–	–	–	1	5	1
Cheshire . .	6	2	–	2	2	2	–	–	–	–	–	–	6	–
Coös	7	1	1	2	–	–	2	–	–	–	3	–	4	3
Grafton . . .	7	–	5	5	1	1	–	–	–	–	–	–	7	–
Hillsboro . .	9	3	2	5	1	1	–	1	–	1	–	–	8	1
Merrimac . .	7	2	1	3	2	–	–	–	–	–	2	–	5	2
Rockingham .	12	4	1	5	3	–	–	–	–	3	–	1	8	4
Strafford . .	18	1	7	8	3	–	2	1	1	1	1	1	15	3
Sullivan . . .	3	1	–	1	–	1	–	–	–	–	1	–	2	1
New Hampshire	79	16	20	36	12	6	4	2	1	6	8	4	61	18

TABLE VI.

AGE OF CONVICTED MURDERERS.

Homicide.	15–20	20–25	25–30	30–35	35–40	40–45	45–50	50–55	55–60	60–65	65–70	70–75	Unknown.	Total.
Murder 1	–	1	2	2	2	–	2	1	–	–	–	1	–	11
Murder 2	–	4	4	5	4	6	2	3	1	2	–	–	–	31
Manslaughter 1 .	1	2	–	3	1	3	–	1	–	–	–	–	–	11
Manslaughter 2 .	4	3	3	2	3	–	2	–	–	1	1	–	1	20
Manslaughter unspecified . . .	2	–	1	2	–	–	1	–	–	–	–	–	–	6
Total	7	10	10	14	10	9	7	5	1	3	1	1	1	79

TABLE VII.

WEAPON AND CONDITION OF MURDERERS.

Weapon.	Instances.	Condition.		
		Drunk.	Sober.	Unknown.
Firearm	30	13	13	4
Knife	8	4	1	3
Fist or Foot	8	7	–	1
Club	18	7	6	5
Poison	3	–	3	–
Other	12	1	7	4
Total	79	32	30	17

REVIEWS.

OCCUPATION STATISTICS OF THE TWELFTH CENSUS.

The Twelfth Census surpasses all its predecessors in the amount of space devoted to statistics of occupations. Over 125 pages were given to this subject in the second volume of population statistics, published in 1902. Last year there appeared a special report, "Occupations at the Twelfth Census," containing more than 1,000 pages. Finally, I understand, a critical discussion of the methods and results of the inquiry is being prepared by a competent hand under the supervision of Professor Walter F. Willcox.

But, despite the marked increase in the amount of space devoted to occupations, it is clear that the results attained leave room for great improvement in the future. This fact, it is pleasant to note, is best understood by the Bureau of the Census itself. The reader of the special report referred to finds that the men who prepared it have sought, not to conceal, but to expose the numerous defects of the figures. The function of the critic is here performed by men attached to the office that compiled the tables. This is as it should be. For, on the one hand, no men have so good an opportunity to see the defects of any statistical tables as the men who have gotten them together; and, on the other hand, no criticisms promise so much for future improvement as those made by men intrusted with the direction of future work.

The occupation of the outside critic is not gone, however, because the inside critic has appeared. The outsider may still perform a useful service in aiding to secure attention to the criticisms of the insider. He may also, as a consumer of statistics, find imperfections which inside critics have overlooked or underestimated. His efforts in either direction are doubtless welcomed by the responsible officials of the bureau. In making criticisms of his own, however, the outsider should recognize that he may make mistakes, or be unwittingly unfair, through lack of intimate acquaintance with the practical difficulties that the Bureau of the Census encounters. Those outside critics are likely to speak with most confidence and most asperity who know least of the processes of collecting data through an ill-trained army of enumerators, of compiling tables through a regi-

ment of clerks, and of preparing volumes for publication amidst the distractions of a busy office. It behooves the critic not familiar with these matters to have a care how he imputes blame or tells what ought to be done at the next census.

These remarks apply with special force to the outside critic of the statistics of occupations, because of the special technical difficulties presented by this branch of census work. Experience abroad as at home has shown that there is no inquiry on the population schedule to which it is more difficult to get satisfactory replies, and that there are no returns more difficult to classify. The bewildering complexity of modern economic organization makes it almost impossible to present in any census report a full and accurate description of the population as a body of bread-winners. These inherent difficulties are, of course, materially enhanced in the United States, where the work of enumeration is intrusted to inexperienced men, where the inquiry concerning occupations is but one among the many inquiries of an elaborate population schedule, and where such a wide diversity of economic development is presented by different sections of the country. The greater the technical difficulties that beset any branch of census work, the less is the outside critic able to judge justly the merit of what is done, and the less is he able to instruct the bureau as to what it should do in the future.

There is still another reason why the outside critic should hesitate to express decided opinions about the occupation statistics of the Twelfth Census at the present moment. As has been said, the Bureau of the Census is not yet done with occupations. A critical discussion of the subject is still to come. Not until the bureau has published its final critical estimate of its work can any one form a just estimate of the work's merit. In writing of "Occupations at the Twelfth Census," therefore, I shall confine myself mainly to calling attention to criticisms that the bureau itself has made. And, while I shall venture a few additional criticisms of my own, I shall not be surprised if the appearance of the critical discussion from Professor Willcox's department proves them to have been anticipated by the bureau.

The first chapter of the special report describes briefly the manner of enumerating and classifying occupations. It is pointed out that the accuracy of the tables depends upon the accuracy of the field-work performed by the 53,000 census enumerators. These enumerators were supplied with a circular of instructions in which a large share of space was devoted to detailed directions about the way in which occupations ought to be reported; but there was little oppor-

tunity for supplementing these printed directions by personal instructions, or for examining and correcting the work of the enumerators before sending their schedules to Washington. Such being the case, it is not surprising to learn that, when the schedules were received by the bureau, many cases of obvious errors were found upon them, and other cases in which the bureau thought that errors had been made, but could not be certain. "As a result," the report says, "there is undoubtedly an element of indefiniteness and inaccuracy and possibly omission in the returns, which under a permanent census organization can be very nearly, if not wholly, eliminated" (p. xxi.). This expression of confidence in the improvement of the field-work in 1910 is very encouraging. The means suggested for securing it are closer supervision of the enumerators and the examination and correction of schedules in the offices of supervisors before forwarding to the central office.

Another suggestion for improving the field-work has been made by Professor John Cummings. It is that definitions of occupations which enumerators are likely to confuse be inserted in the printed circular of instructions. For example, the instructions for 1900 contained many paragraphs like the following:—

"182. Distinguish a *journalist, editor,* or *reporter,* from an *author* or other literary person who does not follow journalism as a distinct profession."

Professor Cummings suggests that such terms as journalist, editor, reporter, and author "should be carefully defined *for*, not *by*, the enumerator," for the reason that enumerators left to make their own distinctions will use the same terms in varying senses. This suggestion seems to an outsider—particularly an academic outsider—to be worthy of adoption. But I am not certain that it will commend itself as strongly to the officials of the Census Bureau. I have found that experienced officials, who have come into direct contact with enumerators, lay great stress on the necessity for brevity in the instructions. They say that enumerators, unfamiliar with books or clerical work as they often are, frequently become muddled when called upon to read elaborate instructions. They do not understand formal definitions clearly, still less do they remember them. It would certainly be desirable for the enumerator to carry his circular of instructions with him on his rounds, and, when a woman tells him that her husband is a journalist, to cross-question her about the character of her husband's work, and then consult the definitions of occupations in the circular to see whether her use of journalist corresponds to that

of the census. But the experienced official will probably doubt whether the average enumerator, paid at so much a name, and unaccustomed to make nice distinctions in the use of common terms, would do all this, and do it correctly. Of course, the rejoinder may be made that men who are unable or unwilling to exercise such care in their work ought not be appointed enumerators. But the fact is, unfortunately, that men of imperfect qualifications must frequently be taken, because better men are not to be had for the work. Professor Cummings's suggestion is certainly one that the officials who draft the instructions for 1910 ought to consider very carefully; but it may be that their knowledge of the psychology of the enumerator will make it seem to them likely to create more confusion than it removes. If, however, the permanent organization of the bureau makes it possible to secure a better class of enumerators, the danger of over-elaborate instructions will be less.*

Passing from the work of enumeration to that of classification, the report states that the scheme of classification used in 1900 adheres "in all essential particulars to the classification of 1890." Four changes were made in the assignment of occcupations to the grand classes; *e.g.*, "Engineers and Firemen (not Locomotive)" were transferred from "Domestic and Personal Service" to "Manufacturing and Mechanical Pursuits." Further, the number of occupation designations presented in the tables was increased from 218 to 303, and these designations were more conveniently grouped. But the changes are changes in detail only, and the classification remains substantially that of previous years.

With this classification it is easy to find fault. The principle of classification is, "in a general way at least," the "kind of work done or character of service rendered." About the desirability of possessing a classification based on this principle there can be no dispute. The numerous reports on special industries, together with the large reports on agriculture and manufacturing, give a fairly good classification of population according to industries. The occupation tables ought to supplement this exhibit by a classification based on a different principle, and the most significant principle seems to be "kind of work." But, if there is only one opinion about the desirability of having a classification based upon this principle, there is also only one opinion about the ill success attending the application of it, as matters now stand. As the report says, this principle could not be followed

*John Cummings, "Occupations in the Twelfth Census," *Journal of Political Economy*, December, 1904.

consistently. The chief difficulty arose from the indefiniteness of the entries made by enumerators in the occupation column. In many cases, in spite of explicit directions to the contrary, enumerators reported occupations in terms so general that the clerks of the central office could not determine what kind of work the person really did. The result was that

. . . "In general . . . it was necessary to classify persons engaged in manufacturing and mechanical pursuits under general designations denoting the place of work or article produced rather than under specific terms indicating the kind of work done." . . . (p. xxvi).

How serious is the harm to the tables resulting from the vagueness of the enumerators' descriptions is shown by the following statement:—

. . . "The proportion of indefiniteness in the returns of the groups of workers comprehending such general designations as makers, workers, employees, laborers, etc., ranges from one-fifth to one-half of the total number of persons in each group" (p. xxvi).

Such results are, of course, far from satisfactory to the Census Bureau or to the student. How the results can be improved, however, is a puzzling question that will doubtless receive much attention from the officials of the bureau before 1910. None but the men who are intimately acquainted with the work of enumeration can give advice of value about the betterment of the classification, for the feasibility of any scheme of classifying occupations depends on the possibility of getting the information which that scheme presupposes recorded on the schedules. Some of the remarks in the present report seem to hint that the old classification was retained in 1900 chiefly from lack of time to arrange a more logical and more practical scheme. This particular difficulty will not embarrass the officials of the permanent bureau, and economists will be interested to see what use they are able to make of their ampler time. But to the outsider their problem seems a baffling one, even with abundant time to study it. The officials will be loath to give up the old principle of classification, and loath to make changes in its application that will destroy the formal comparability of the new and old tables. But they will also be loath to publish again tables containing so many headings devoid of all significance. And, even if they succeed in drawing up a logical scheme of classification, they must still face the difficulty of securing through enumerators the information concerning occupations necessary to apply it.

But, while an outsider gladly leaves this problem to the insiders, he can offer one suggestion growing out of his attempts to understand the tables, and applicable to any classification that may be adopted. In publishing elaborate tables, it is necessary to use single words or brief phrases for the hundreds of "occupation designations," because fuller descriptions would take too much space. But the student of the tables is frequently unable to judge from these brief designations just what persons are grouped under them. Such designations as "Artists and Teachers of Art," "Electricians," "Journalists," "Literary and Scientific Persons," etc., are by no means free from ambiguity. Under each were doubtless placed persons whose occupations were described on the schedules in many different ways. In compiling tables from the schedules, the "punching clerks" must be provided with an index of occupations to show to which one of the three or four hundred designations that appear in the published tables each of the thousands of entries that appear on the schedules is to be assigned. The meaning of these designations would be rendered clearer if this index were published. In publishing the index, however, it would probably be best to arrange the items, not in alphabetical order, but in groups under the designations to which each is assigned.*

The second chapter of the report presents a careful comparison of occupations at the twelfth and preceding censuses. This comparison exhibits the changes that have been made from decade to decade in the manner of enumeration and classification, and includes a rearrangement of the earlier results in such form as to make them as nearly comparable as possible with those of 1900. But the reader is left no excuse for assuming that he can take the figures of the several censuses as representing accurately the changes that have taken place in the numbers of persons engaged in all the occupations listed.

Chapter III provides an elaborate summary and analysis of the results of the Twelfth Census. Here, again, the compilers have been commendably careful in calling attention to the probable inaccuracy of many of the figures. A set of maps and diagrams intended to present the most important results in graphic form is added. Appendices give the instructions to enumerators concerning the occupation in-

* I may add that I have learned the value of the index of occupations from experience. I had an opportunity to study the tables of the Eleventh Census with the index in my hands, and found in numerous cases that the "designations" include persons of whom I should not have thought had not the index been before me. The "designations" are in fact more ambiguous than they seem to be, and even a careful student may make mistakes in using the tables unless he has the fuller knowledge that only the index can give.

quiry at the last four censuses, and a summary of the State laws concerning the employment of children. The general tables that follow are arranged in admirably systematic form. The first set gives the results for the whole United States, the second set for the several States, and the third set for the principal cities.

A discussion of these results does not lie within the scope of this paper, but there are two points connected with the manner of presentation on which comment may be made. The first is a matter of terminology. It has been the custom in federal censuses to use the cumbersome phrase "Persons Engaged in Gainful Occupations," or some equally cumbersome variant, to designate all those of whom the occupation tables take account. In the special report for 1900 this practice is generally followed; but in some places where limits of space make a briefer phrase necessary—*e.g.*, in the figures of Plate No. 1—the term "Wage-earners" is substituted. Now it would be well to drop the longer phrase altogether if a good brief substitute could be found; but it is certain that the substitute used in the present report is not good. A very large part of the "Persons Engaged in Gainful Occupations" are not wage-earners at all—*e.g.*, farmers—and to call them such will assuredly give rise to misconceptions among hasty readers. Why not use the less misleading term "breadwinners"? This term has been used in some foreign tables of occupations,—notably in Australasian censuses,—and was introduced into American use in the censuses of Cuba and Porto Rico, taken under the supervision of the War Department. It is not mere pedantry to object to the cumbersome "Persons Engaged in Gainful Occupations," and to the misleading "Wage-earners," when so brief and clear a term as "breadwinners" is available.

The second point concerns the presentation of statistics of unemployment. On the population schedule, adjoining the column headed "Occupation," was a narrow column headed "Months not Employed." In this column, enumerators were instructed to enter "the number of months (or parts of months)" of the census year during which "each and every person ten years of age and over who was engaged in gainful labor . . . was unable to secure work of any kind." Now I have been unable to find, either in the tables of unemployment or in the accompanying text, any record of cases in which enumerators failed to make entries in this column according to their directions. Is the reader to infer that there were no such omissions? The inference is hardly credible. But, if cases of omission occurred, what was done with them? I cannot find that they were tabulated separately. Were they divided according to some assumed rule between the cases

definitely reported as unemployed and the cases not so reported? If so, the report is silent about the fact. Or, when no return was made, did the bureau assume that the person in question was steadily employed during the full year? If so, the fact ought to be frankly stated, and the reasons justifying such an assumption given. The matter seems to me one of importance for the good name of the Bureau of the Census. Many persons are prone to say that the bureau's work is colored by a desire to make the country appear "prosperous." Allegations of this character are more plausible in connection with the inquiry into unemployment than in connection with any other inquiry on the population schedule. Hence it is particularly desirable that the bureau should protect itself by making a full and candid statement of just how the tables were constructed. It is unfortunate to leave room for the suspicion that a point was stretched to reduce the apparent prevalence of unemployment. The matter ought to have been cleared up in the special report; but, since it has not been, the critical discussion ought to remedy the omission.

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ECONOMIC CONDITIONS OF THE JEWS IN RUSSIA.

Sources.—The following article has been based entirely upon a recent work in two volumes, published in St. Petersburg in 1904 by the Jewish Colonization Society, and entitled "Economic Conditions of the Jews in Russia."

In preparing these volumes, the Society utilized material from three independent sources.

1. The Jews in cities and towns within the Pale,—that is, the 25 governments of Russia in which the Jews are allowed to live—were studied with the help of 1,000 correspondents of the Society, who visited about 1,200 different communities. Their investigation was made in 1898.

2. The Jewish agricultural colonies were investigated by agents of the Society, who made a house-to-house canvass. In 1898, 208 colonies, containing 60,000 inhabitants, were visited.

3. The Jews outside the Pale were officially investigated, under the supervision of the Minister of the Interior, in 1893.

The data of the first census of 1897 have been extensively used, whenever available.

The facts cannot be accepted as entirely accurate, the margin of

error, in some cases, being considerable; but this is the best source of information on the subject, and a summary of the conclusions reached may be of value to the American public.

Number and Distribution.—There are records of the presence of some Jews in Russia as far back as the first century of our era. In the tenth century Wladimir the Saint received a deputation of Jews when he was about to decide on a new religion for himself and his subjects. But the number of the Jews at that early date was insignificant. The great bulk of them came within the limits of the Russian empire with the division of Poland in 1795. Their number, at the time, was somewhat below a million. This date may be set as that of the first appearance of the so-called Jewish question in Russia.

In 1835 the limits of the Pale within which the Jews were allowed to settle was defined. It covered the western third of European Russia, from the Black Sea on the south to the southern boundaries of the Baltic on the north. The rivers Dnieper, Vistula, Niemen, and Western Dwina flow through the region. In 1882 this territory was still more reduced by the enactment of the famous May-laws, prohibiting the settlement of Jews in country districts and the migration of Jews already living in the country from one place to another.

In 1897 there were 5,189,401 Jews in Russia, or 4.13 per cent. of the population of the Russian Empire professed the Mosaic creed. Their distribution throughout the country was as follows:—

	Number.	Per Cent. of Total Population.
European Russia (without Poland)	3,765,760	4.03
Poland	1,316,576	14.01
Caucasus	58,471	0.63
Siberia	34,477	0.60
Middle Asia	12,729	0.16
Finland and other places	1,382	

In the 15 governments of the Pale the number of Jews was 3,558,060. Together with Poland the Pale contained 4,874,636 Jews, or 95.9 per cent. of the total number of Jews in European Russia. The remaining 4.1 per cent. belonged to the few privileged classes who were allowed to live outside the Pale. Their number was 207,706, or $\frac{1}{4}$ of 1 per cent. of the Russian population outside the Pale.

Within the Pale and Poland the Jews formed 11.5 per cent. of the

population. But the great bulk of the Jews lived in towns and cities, and it will be more instructive to consider their proportion to the city population. Out of the total number of 9,307,247 urban population, 3,809,361, or 40.9 per cent., were Jews.

The greatest proportion of Jews is found in the north-western district, comprising Lithuania and White Russia. In this part the Jews form 57.9 per cent. of the urban population. On the other hand, they are least numerous in the southern district, known as New Russia. Here they constitute only 26.3 per cent. of the total number of inhabitants of towns and cities.

There are in Russia 62,499,719 men and 63,168,471 women, or to every 100 women there are 98.9 men. Among the Jews the preponderance of women is greater. To every 100 Jewesses in Russia there are 95.6 Jews. This is the more striking because in the interior of Russia the number of men exceeds that of women, and the number of Jews exceeds that of Jewesses.

The reason for this great number of women in the Pale is twofold.

1. The struggle for life falls heavier upon the men, and to every 100 women who die there are 126 deaths reported among the men.

2. Emigration carries away a great many more men than women.

Within the Pale the greatest proportion of women is to be found in the north-western section, where the number of Jews is greatest, and whence a constant stream of emigration carries the more venturesome sex to the less congested parts of Russia or, more frequently, over the ocean.

The effect of emigration is noticeable also in the age distribution of the Jewish population. There is a larger proportion of children among the Jews than among the Christians, and there is a smaller proportion of men in the most productive ages, from 20 to 40. Thus in the Wistebsk government the Jews form 52.8 per cent. of the total urban population; but the Jews in the ages between 20 and 40 only form 39.7 per cent. of the total city dwellers of corresponding ages. The same fact is illustrated by the following figures, showing the absolute numbers and the percentages of increase among the Jews from 1881 to 1897:—

Section.	1881.	1897.	Per Cent. Increase.
North-west	1,247,007	1,410,001	13.4
South-west	1,215,393	1,418,279	16.7
South	453,765	729,780	60.9
Total	2,912,165	3,558,060	22.2

This shows that the less the proportion of Jews to the total population, the greater the proportion of increase among them.

Agriculture.—There are at the present time about 200,000 Jews, or about 60,000 Jewish families in Russia depending partially or totally on agriculture for their support. The Russian government encouraged the establishment of Jewish colonies in the first half of the nineteenth century. This resulted in the establishment of a considerable number of Jewish agricultural settlements. In 1865, however, a series of restrictive measures was begun. The Jews were prohibited from acquiring land in certain districts. In 1882 this law was extended to the whole territory of the Pale. In 1891 it was made to apply to Poland, and in 1903 Nicholas II. extended the operation of the law to the whole of the Russian empire. The success of the governmental encouragement in the earlier days was not as great as might have been anticipated, for the simple reason that agriculture, carried on in the Russian manner, is hardly a sufficient means of supplying the wants of the unpretentious Russian peasant. The Jews have a higher standard of living, and as long as they could profitably carry on other pursuits they were not anxious to take to the plough. Since then congestion and desperate competition have made most of the other trades insufficient for the support of a Jew and his family, and he would gladly turn to agriculture, did not the law prevent him from so doing. Furthermore, certain commissions have been appointed from time to time by the government to readjust the land claims granted to the colonists. The result of the work of these commissions was the taking away from the Jewish colonists of one-half of all the lands owned by them.

A great many of the colonists of to-day have to look for outside sources of income, as their small farms, their inadequate knowledge of methods of cultivation, and the scarcity and crudeness of their implements, together with an insufficient number of draught animals, make it impossible for them to support themselves and their families by agriculture.

The colonists who derive their entire income from their farms succeed better in the cultivation of tobacco, the vine and vegetables, than in the raising of cereals. This is due to the small size of their lots.

The needs of the colonists may be summarized in the following way: permission to acquire land, better facilities for education, a smaller burden of taxation, and better credit accommodations, to enable them to acquire improved implements at a reasonable rate of interest.

Artisans.—The Jewish Colonization Society succeeded in obtaining information of about 500,986 Jewish artisans. This number covers 13.2 per cent. of the total Jewish population of Western Russia. In Germany only 6–7 per cent. of the population are artisans, so that the proportion of Jews in this class of occupations is about double that to be found across the border. This proportion varies for different parts of the country, but it may be said in general that one-tenth to one-fifth of all the Jews in Russia are artisans. If we take the Jewish population between the ages of 10 and 60, we find that 18.4 per cent. of it throughout the Pale and Poland are artisans.

The predominance of this occupation is mainly due to the legal difficulties preventing the Jews from entering the other professions.

It is interesting to note that the Jewish artisans form a proportion of all the artisans far greater than that of the Jews to the rest of the population. In different districts the proportion of artisans who are Jews varies between 50 and 80 per cent. Thus the Jewish artisan is an important economic factor in the life of Western Russia. The Russian government realized the efficiency of the Jewish artisan and the detrimental effect of his confinement to the Pale, and in 1865 permitted the Jews in skilled trades to live in all parts of the empire. This law, however, had practically no effect, as it was worded in a way not calculated to inspire confidence. The artisan was not sure but that in case of sickness he would be sent back to the Pale for not practising his trade. He knew that his family, in case of his death, would be returned to the congested districts, and that his son must pursue the same trade as his own if he wanted to enjoy the privilege of remaining outside the Pale. Under such circumstances it is not astonishing that but very few Jews availed themselves of the opportunity of emigration. The energetic Jew who was willing to emigrate preferred to sail over the ocean, and find a permanent home for himself and his family.

Between the different trades the Jewish artisans are distributed in the following way:—

	Per cent.
1. Food producers	11.6
2. Clothiers	38.7
3. Leather goods manufacturers	17.0
4. Wood-workers	9.9
5. Metal-workers	9.8
6. Producers of chemical supplies	0.7
7. Builders	6.3
8. Textile workers	3.7
9. Paper and cardboard manufacturers	2.3

Thus the tailors and leather goods manufacturers form 55.7 per cent of all the artisans. This proportion is pretty steady throughout the different sections of the Pale.

We find that 20 per cent. of all the artisans are children from 10 to 15 years of age. Women, until recently, did not participate in the trades; but economic pressure has forced them to step into the ranks of artisans, and at the present time there are 76,548 Jewesses in the trades, or 15.3 per cent. of the Jewish artisans are women. The women are mainly dressmakers, shirt-makers, and hosiers.

The trades, in the great majority of cases, are acquired in the following way: A boy is apprenticed out for four years to a master. He works for his room and board and schooling. During the fourth year he receives a small remuneration. But the masters generally have a very inadequate knowledge of the trade, and they impart this insufficient amount of knowledge to their pupils. The life of the apprentice is made very hard by excessive work, poor food and shelter. The Jewish boys can never be apprenticed to Christians, as the Saturday holiday and the Jewish food would not be provided by them. This is to be regretted, as the Christians, not being confined to the Pale, often have the opportunity of learning superior methods of workmanship.

The goods produced are of a cheap grade. This, however, is determined by the demand for cheap goods from the Russian peasantry whom the artisans supply. When the Jews have the chance to learn, they do just as good work as the best Christian workmen, and some claim that they do better.

One of the main difficulties in the career of the Russian Jewish artisan is the lack of capital with which to start business, and the absence of adequate credit accommodations, which would enable him to borrow the money for his tools at a reasonable rate of interest. As the state of affairs is now, the poor workers have to borrow their capital from usurers, and pay 48 per cent. interest on it. This is a moderate figure. In reality, the rate of interest charged often is as high as 120 per cent.

There are four different ways of marketing the goods produced by these artisans:—

1. Direct orders by customers. This is very frequent, especially in the case of repairs.

2. Fairs are held at frequent intervals in that part of Russia where the artisans live, and they often go to these fairs, and there dispose of the products of their labor.

3. There are many commission merchants who prey on the help-

lessness of the producers. They go from shop to shop, and buy up a great amount of goods in order to sell them in distant parts of the country. These merchants pay ridiculously small prices for the work, but, since this is the only way of reaching distant markets, the Jewish workers, who are not allowed to travel themselves, make extensive use of the expensive services of the middlemen.

4. Some large concerns have their goods made for them by the poorer Jewish artisans. This kind of work bears all the earmarks of the genuine sweating system.

From what has been said so far it is quite easy to infer that the incomes enjoyed by the workers are very low. $3 a week is the maximum reached by any considerable number of them, while this sum is often greatly diminished by irregularity of the work and by slack seasons. A great many of these people are obliged to work sixteen hours a day, and yet remain at the verge of starvation, and in case of disability they are forced to apply for charitable relief.

To sum up the needs of these people, it may fairly be said that (1) they need freedom to move from place to place, which would enable them to leave the overcrowded districts and seek employment in the less congested parts of the country; (2) they need trade-schools to teach them progressive methods of working; and, finally, (3) they need cheap credit to enable them to secure their instruments at a reasonable rate of interest.

Unskilled Labor.—There are, perhaps, 100,000 Jews who pursue an occupation called in Russia "black labor." Of this kind of labor the following are examples: drivers, wood-cutters, stone-cutters, freight-carriers. One-third of this class of laborers are freight-carriers, and about as many more are cab-drivers. A good many of these people have no special occupation, and just wait at the corners or at the railroad stations for somebody to give them a job. The incomes of these people are miserably small, and they are all potential or actual paupers. Mr. Gordon, in his book on "The Alien Immigrant," gives a very vivid description of this class of people of Western Russia.

Industries.—The data collected by the Jewish Colonization Society about the participation of Jews in the industries of the country are very much less satisfactory than any other part of their work. Their correspondents have paid attention only to the Jews in factories, and, therefore, any adequate estimate of the proportion they bear to the Russian laborers is hard to make. In general, it may be said, however, that the Jews own more than their share of the capital invested in the industries of the country; but, on the other hand, Jewish laborers form less than their proportionate share of the industrial population of Western Russia.

There are three main reasons for this smaller participation of the Jewish laborer in the industries:—

1. He will not work on Saturday, and the factory cannot afford to stop for two days a week.

2. The food given to laborers is often prepared on the premises, and the Jew refuses to eat any food not cooked according to his religious rules.

3. A great many factories are situated outside of towns or cities, and thus the Jews are not permitted to live around them. All these reasons tend to reduce the number of Jewish laborers very considerably. In the whole of Western Russia there are probably not over 45,000 to 50,000 Jewish laborers.

As to Jewish capital, it is not so large as is claimed by many writers, and yet it is probably in about twice as large a proportion to the total capital invested in the country as the proportion of the Jews is to the total population.

The districts where the Jews are allowed to live are mainly agricultural, and the industries in the district are just beginning to develop. The Jews generally own the small concerns, because the uncertainty of their legal status makes them cautious in investing large amounts of capital. Besides, the Society has reached the conclusion that in the great majority of cases the Jews lack the capital necessary for the establishment of large industrial enterprises.

Poverty and Relief.—The kind of relief that is most customary among Jews is the gift of a small amount of money for the celebration of the Easter holidays. The number of people who are obliged to resort to this sort of charity may give an idea of the poverty of the community. In 1898, 138,156 families received aid for the Easter celebration. This number constitutes nearly one-fifth of all the Jewish families in Western Russia. The total sum given to them amounted to about $130,000, making an average of less than a dollar per family. The percentage of relief-seeking families is larger in the Pale proper than in Poland. Therefore, since the Jews form 40 per cent. of the city population of Western Russia, and since nearly one-fifth of all the Jewish families receive charity in some form, the Jewish paupers form nearly 8 per cent. of the total urban population of this part of the country. This percentage tends to be very much higher in the large centres of population. Thus in Vilna about 38 per cent. of the Jewish families applied for relief, and yet we find mentioned over and over again that pride prevents the Jews from seeking public aid, unless their conditions are desperately miserable. So it appears that from one-quarter to one-third and more of the Jews

in large cities are destitute. The amount of poverty has been rapidly increasing ever since the restrictive legislation of 1882. The introduction of the governmental monopoly of the liquor business in 1896, in depriving a great many Jews of their means of subsistence, also materially raised the number of dependants. It must, of course, be kept in mind that not all the relief given is recorded, and yet the proportion of families forced to apply for relief is alarmingly high. It is well to remark that there are no professional paupers among the Jews, and that those who apply for relief are persons whose trade does not yield them a sufficient remuneration to support themselves and their families.

What is being done for the relief of these poor people? As a rule, every Jew either gives alms or receives them, so that all the Jews who manage to support themselves supply their share towards the help for their less fortunate brothers. The centre of relief-granting is generally found in the synagogue, and the funds are collected partly from private contributions, partly from the tax levied by the government for the use of Jewish meat on all the Jews who observe the rules provided by their religion. Part of the proceeds of this tax is regularly diverted by the officials for other uses.

There are over 2,000 Jewish philanthropic institutions in Russia, the majority of which have for their object the education of poor children, the help of the sick, and the distribution of free loans. There are about 350 free loan associations which wage war on the extortions of the usurers. Three-fourths of these associations own less than $250, and the amount of help they can give is proportionately small.

There are 126 Jewish almshouses, with about 13,000 inmates. 50 institutions supply food to the hungry; 72 provide clothes for the needy; 112 hospitals and 665 medical aid associations take care of the sick; while 51 institutions help poor brides in the establishment of their new homes. The majority of the institutions, however, belong to a general type. These agencies supply all the help within their reach to any person who is in need of it. Their methods are antiquated, and in the majority of cases they give direct pecuniary help. An enlightened philanthropic movement has sprung up in recent years, but it has found legal difficulties in its way, and has not succeeded in accomplishing a great deal toward the uplifting of the masses struggling with poverty.

Education.—There are about 25,000 Jewish primary schools in Western Russia. These are the so-called "Kheders." 375,000 children go to these schools. These Kheders are usually held in the living-rooms of the teacher, the "melamed." The sanitary conditions in

these schools are far below our lowest standards of hygiene. The air supply is insufficient, the light is not bright enough and seldom on the left side, the furniture is rude and detrimental to the physical development of the children who use it.

About 95 per cent. of the pupils are boys, the education of girls not being considered important by the orthodox Jews. Their age is from 7 to 11, seldom below 7, but occasionally as high as 16.

The "melameds" are defined as men who have failed in every other profession, and turned to teaching as the one trade which needs no ability of any sort. They are only allowed to teach the Mosaic faith and the Hebrew reading and writing. The pupils seldom acquire any knowledge beyond this in the school, and yet they spend eight hours a day in studying under the direction of the "melamed."

The average cost to the parents of this education for their children is $13 a year,—a considerable price for these people; and yet they prefer to pay it to the alternative of leaving their offspring without any school training. About $3,250,000 a year are spent by the Jewish people on the "Kheder" education of their boys. Very few Kheders are organized on a more advanced scale than those described.

About 600 more advanced Jewish schools give facilities of education to some 60,000 Jewish boys and girls. The teachers in these schools are much better than in the Kheders, and yet their fitness for the task may, in a great many cases, rightfully be questioned. A great need is felt for an institution which will prepare teachers to take the place of the incompetent "melamed."

As to the admission of Jews to the public schools instituted by the government, it must be said that these schools are few and far between, and that their managers, unable to accommodate all the Christian applicants, refuse the great majority of the Jewish applications. About 430,000 Jewish children are denied the opportunity of entering such schools. A very small number of Jews succeed in obtaining admission to the higher schools, the gymnasia. The law provides for a 10 per cent. relation between the number of Jews and the number of Christians in these schools. The number of these schools is entirely inadequate, and the few Jews who succeed in going through them form a dwindling minority.

In 1899 there were about 1,800 Jewish students in the Russian universities. Admission is very hard to obtain for them, and their outlook after graduation is not encouraging, as they are practically barred from all the liberal professions, to say nothing of governmental service.

Finally, a few trade-schools ought to be mentioned which give in-

struction to Jews in skilled labor. The great need of such schools is very evident, and their small number is a subject of great regret.

Conclusion.—After having examined the conditions in which the Jews have to live in Russia, and the difficulties with which they have to struggle in their desire for self-improvement and civilization, can we be surprised at the number of them who seek refuge in this country? 77,000 Russian Jews arrived in the United States in 1904, and many more will follow them over the ocean, year after year, until the sparsely populated parts of Russia are opened to them, and until political equality gives them a fair chance in the struggle for life.

E. A. GOLDENWEISER.

MISLEADING STATISTICS OF COST OF PRODUCTION.

In the December (1904) number of the *Massachusetts Labor Bulletin* there appears an article on "Increases in the Cost of Production," in which some of the statistical methods used are open to serious question. The subject, which is limited in the article to the study of increases in cost of production due merely to increases in pay and decreases in hours of labor of employees (without reduction of pay), is one that is now attracting wide attention, and there is some danger that misinterpretation may be made of the statistics presented. It is, therefore, necessary to point out the need for caution in their use by showing some of the faults of the methods evidently used in their compilation.

First. In the matter of definition and classification, attention should be called to the fact that but about one-third of the returns are for occupations connected with what are generally understood to be manufacturing industries. Yet the implication by the text of the article in its introductory paragraph (p. 289), where it speaks of the increase in the cost of production of "manufactured articles," and again in the discussion of the data presented on page 298, where it mentions the "manufacturer's standpoint" in regard to the problem of reduction of hours and increase of pay, is that the statistics deal directly with manufacturing industries. As a matter of fact, of the 479 returns shown in the tables, only 169, or about one-third, are for "Industries" that would fall under the census classification as manufacturing industries, 126 are for occupations (although called "Industries"), and of the remainder, 27 are for laundries and 157 for "Building." The question as to what constitutes manufacturing

has been discussed at length in the Twelfth Census ("Manufactures," vol. i, pp. xxxiv-xxxvii), and the distinction between manufacture and hand trades clearly laid down.

Of the 25 "Industries" presented, 12 show themselves, by title, to be occupations merely; for example, engineers, teamsters, switchmen, etc.

A further question arises in regard to what constitutes a "Branch of occupation." From the use of this term on pages 296–297 the conclusion is evident that in some instances a difference in the returns, either in number of hours worked or in pay, for what, from the nature of the work performed, is generally understood to be a certain occupation, has had the effect of constituting each such return as a separate "Branch of occupation" in these statistics. As a result, there are fifteen returns for "Compositors" under "Printing, Publishing, and Book-binding," and ten for "Foremen," fifteen for "one horse" under "Teamsters," etc.

The errors entering into the statistics because of this lack of proper definition and classification will be pointed out in the discussion concerning averages.

Second. The scope of the inquiry was evidently limited to cities. It was, therefore, inevitable that a large part of the manufacturing population of the State should not be represented. But even the limitation of the inquiry to cities should not have excluded such important manufacturing industries as the textile, paper, cigar, piano, candy, cloth, and tanning industries. Some of these are important factors in the industrial life of the cities.

Yet even in the "Industries" represented the number of returns presented for an "industry" is often disproportionate to its importance. For example, there are but 23 returns for "Shoe Factories," 15 for "Breweries," 13 for "Iron Foundries," while for "Printing, Publishing, and Book-binding" there are 40, for "Teamsters" 74, and for "Building" 157.

Third. The question of the representativeness of the returns cannot be answered either by statements in the text or the tables. For how many men or establishments do these statistics stand? What proportion do the men bear to those employed in all industries in the cities or the State? How many persons enter into the return for each given occupation and rate of pay?

Fourth. The question arises in regard to whether the returns presented are all that were obtained in the canvass or simply those instances that show an increase. In other words, is there a bias? It may be that the actual conditions have been shown, but it seems

strange that in *every* instance a positive increase in cost of production is indicated. Some explanation in the text for such a phenomenon is desirable.

Fifth. The averages of increases in cost of production are of faulty construction, and likely to be misleading. As has been pointed out in the discussion of definition and scope, the nature of the data collected, and the classification of it, are both open to serious criticism. The deficiencies have a direct bearing on the construction of the average. On page 297, following a detailed discussion of the increases in the various "Branches of occupation," occurs the statement that "the general average was 17.27 per cent., the extremes being 5 per cent. and 66.67 per cent." The effect of the disproportionate number of returns under the different classifications gives undue prominence to certain occupations and industries in the computation of the general average. The criticism holds, whether the general average is obtained from the averages of the different "Industries" or directly from the 479 different percentages of increase shown for "Branches of occupations."

But, furthermore, any such method of obtaining an average increase in the *cost of production*, whether for all "Industries" combined or for separate "Industries," is fundamentally incorrect, even though no objection could be raised on the score of improper emphasis given to certain data. In the determination of changes in the *cost of production* of an article, *due to changes in the cost of labor*, whether by increase of pay or decrease in hours, the pay not being lowered, there must be taken into account:—

(1) The extent to which each employee is concerned in the production of the article.

(2) The amount of pay each receives per unit of time worked. The statement of occupation is not essential, but it is highly instructive, and therefore is desirable. A practical way of obtaining changes in cost of production due to the causes discussed, is to compare the cost of labor per man per hour for the two periods; that is, the total amount of the pay (per hour) of each separate employee, divided by the number of employees. For example, the 50 per cent. increase of pay of one foreman in a shop from $3 to $4.50 for ten hours' work has less influence in the determining of changes in cost of production than the 15 per cent. increase of pay of his ten subordinate moulders, from $2 to $2.30, or the 10 per cent. increase for their twenty helpers, from $1 to $1.10. Obviously, the increase in cost of production, due to the rise in wages, is 15.1 per cent., and not 25 per cent. (the average of the percentages of increase of the occupations stated).

The data, the lack of which was referred to under the topic of representativeness of the returns, should always be stated. Certain of the facts are absolutely necessary for the computation of accurate statistics of changes in cost of production.

It will now be in order to touch upon some good points which are to be found in the article: such are the publication of careful foot-notes where the nature of the data requires; the warning against use being made of the rates of pay shown in the tables for any computation to show weekly rates or weekly incomes for workmen; and, especially, the publication of the detailed table for each of the years 1900–04 (pp. 299–305), which has a large amount of information that, taken in connection with the history of labor movements in the industries affected, has a good deal of value. To illustrate, it is possible to analyze the changes taking place into three sets,—increases of pay with hours remaining constant, decreases of hours, but not of pay, and both increase of pay and decrease of hours. The following table shows some results of such an analysis made for certain kinds of employment:—

	Increase of Pay Only.	Decrease of Hours Only.	Increase of Pay and Decrease of Hours.	Total Returns.
"Shoe Factories"	—	21	2	23
"Teamsters"	57	13	4	74
"Building"	38	71	48	157

In conclusion, it may be remarked that, while the statistics presented in the article are of some value, and while it may be true that there has been a decided increase in the cost of production of manufactured goods, and also of cost of labor in other forms of industry, such as the building trades, due to increases of daily pay or decreases in hours worked for an undiminished pay, and that, as a result of these causes, prices in general have been raised, yet it must be said that neither the data presented nor the averages derived from them in the article can be accepted as competent and sufficient proof in the determination of the question.

DAVID L. WING.

RECORDS OF CHARITY.

Charity workers are beginning to appreciate that they are collecting from day to day much material of value to the social student, and that they are not fulfilling their whole duty as custodians of it unless they make it available for legitimate purposes of research. They are also becoming convinced that in their daily work with individual families it is an advantage to have for a background the accumulated experience of other workers in the same problems.

As a help toward putting these theories into practice, the New York Charity Organization Society has recently installed a card catalogue of all the families coming under the care of the society during the course of the year. These cards do not in any way take the place of the detailed "case record" which is used in the treatment of the family, but are purely for statistical purposes. The plan is as follows:—

A card giving the fundamental facts about the composition and the circumstances of the family, and what is done for it, is kept on file for each case coming under the care of the society. This card is partially filled out, as far as is possible at the time, in the district or department which has charge of the family, within a few days after the case is opened. When the case is closed, the card is completed, in the central office, from the case record.

The cards are of two colors, white and brown: a white card indicates a new case in the current year; a brown card, a recurrent case,—*i.e.*, one for which there was a record in the registration bureau prior to the beginning of the current year.

There are also two files, in each of which are both white and brown cards: one file is of cases which have been closed since the beginning of the current year; the other is of current cases. Cards in both files are arranged alphabetically, by the family name.

Both white and brown cards are numbered consecutively, in two series, as they are received in the statistical bureau. On any day the last number used on the white cards indicates the total number of new cases in care during the year, and the last number on the brown cards the total number of recurrent cases.

There are tabs along the upper edge of the card indicating the district or department in which the case is cared for. By colored clips, placed on the upper right-hand side of the card, the following facts are indicated:—

1. A widow, a widower, or a deserted family.

2. That there was serious illness (other than tuberculosis) in the family at time of application.

3. That there was a case of tuberculosis in the family.

4. That the natural wage-earner is incapacitated by old age.

5. That the head of the family is foreign-born, and has been in the United States less than five years, or that he has been in New York City less than five years.

6. That the family is receiving a pension through the Charity Organization Society, "pension" being defined as a fixed sum provided for a term of at least three months, to supplement the family income.

This category can be added to or modified from time to time, as conditions indicate.

It is proposed also to indicate on large maps of the city the block in which each family is living when it applies for help. In the course of time these maps will doubtless reflect many changes in the character of certain localities, and they will serve a practical purpose to the society in planning for the work of the district offices.

By this system it is possible, on any day, by a very little work, to get at:—

1. The total number of new and of recurrent cases which have been under care since the first of the year.

2. How these cases are distributed among the districts of the society.

3. Where they live in the city.

4. The number and proportion of consumptives, widows, deserted families, and other special classes.

With somewhat more labor, but still comparatively little, it is possible to make more complicated summaries of the work being done; and there are almost unlimited possibilities in analyzing the year's work, from various points of view.

The principal objects aimed at in planning this system have been:—

1. To provide for statistics which will represent the amount and variety of work done by the society during the year more graphically than do any now available.

2. To centralize certain information about the current work, hitherto scattered among districts and departments, making it available for reference at any moment.

3. To watch, more closely than has hitherto been possible, tendencies in methods of treatment and in the characteristics of that part of the dependent population which comes under the care of the society, with reference, for example, to changes in its national composition and in the circumstances which bring it to dependency; incidentally, also, to keep track of changes in the economic character of localities.

4. To encourage a wider use of the material at hand in the case records of the society by putting ourselves in a position to suggest definite studies which seem particularly urgent and most promising of practical value (*e.g.*, of a special class of cases or of the results obtained by following a certain policy), and at the same time to furnish a substantial basis for the beginning of such studies.

A system similar to this was put into operation by the United Hebrew Charities in October, 1904. It is much desired that all charitable organizations in the country should adopt the plan as soon as possible, and that eventually all should use a uniform card, in order that results may be comparable.

LILIAN BRANDT.

CONSUMERS' SOCIETIES IN GERMANY.

The German Consumers' Society, similar to its English prototype, the Co-operative Society, only began to thrive after legislation had succeeded in protecting it against its foes from within and without. The first law of that nature was the one of 1868 giving the societies the right to sue and be sued; the second one, the law of 1889, recognizing societies with "Limited Liability." Another stimulating factor was the change of attitude in the early nineties toward the Consumers' Societies movement. Still remembering Lassalle's teachings, the workingmen had until then stood sullenly aloof, but now began to flock in ever-increasing numbers to the consumers' societies, recognizing their great economic and social value.

The percentage of workingmen members has risen from 42.6 in 1889 to 72.9 per cent. in 1903. The rapid development in number and membership of the German consumers' societies may be seen from the table below:—

Year.	Number of Societies.	Membership.
1864	38	7,709
1875	179	98,055
1885	162	120,150
1895	460	292,077
1900	568	522,116
1901	638	630,785
1902	835	781,637
1903	878	821,089

One and four-tenths of the empire's population are members of Consumers' Societies, or one inhabitant out of every 704. Capital, trade, and net earnings of the societies are rapidly growing.

Year.	Capital. Marks.	Trade Marks.	Net Earnings. Marks.	Being Equal to Per Cent. on Investment.
1864	64,299	802,767	25,401	39.5
1875	2,912,265	22,704,963	1,258,090	43.2
1885	3,319,098	35,136,555	3,026,795	91.2
1895	6,957,304	82,681,043	8,314,002	119.5
1900	10,842,265	126,970,187	12,743,520	117.5
1901	12,942,796	155,684,048	15,188,616	117.4
1902	15,279,108	195,663,748	19,430,008	127.2
1903	16,006,691	230,676,567	20,283,221	126.7

Net earnings are used, partly to strengthen the reserve funds. The rest is disbursed in the shape of a dividend, not on the capital, but in proportion to purchases.

The dividends amounted to:—

1899	11,126,542	marks,	being	equal	to	9.6%	on	purchases.
1900	12,132,194	"	"	"	"	9.6%	"	"
1901	14,411,579	"	"	"	"	9.2%	"	"
1902	17,349,917	"	"	"	"	8.8%	"	"
1903	18,859,090	"	"	"	"	8.2%	"	"

The slight decrease in the rate of dividends is due to the fact that during the last few years a great many new societies have been started, which cannot as yet pay high dividends, thus lowering the general average. Dividends range between 1 per cent. and 15 per cent.

Reserves amounted to:—

Year.	Reserve.	Being Equal to Per Cent. of Share Capital.
1864	14 736 marks	22.9
1875	503,409 "	17.3
1885	1,735,746 "	52.3
1895	3,228,884 "	46.4
1900	4,856,624 "	44.8
1901	5,889,959 "	45.5
1902	6,641,035 "	43.5
1903	7,634,365 "	47.5

Share capital inclusive reserve per capita amounted to:—

Year.	Capital Plus Reserve.
1864	10.26 marks
1875	34.90 "
1885	42. "
1895	35. "
1900	30. "
1901	29.90 "
1902	28. "
1903	28.70 "

Average trade and dividend per member amounted to:—

Year.	Trade.	Dividend.
1899	248 marks	23.50 marks
1900	243 "	23.20 "
1901	247 "	22.90 "
1902	250 "	22.20 "
1903	281 "	22.90 "

The individual amounts are necessarily quite small, but they are obtained without resorting to curtailment of expenses on part of the members or by lowering the quality of their supplies. Collectively, the Consumers' Societies have earned for their members since 1864 the sum of 183,610,949 marks, every penny of which would, without their existence, have been diverted to other pockets than those of the class which now predominates in the movement.

FRANK WETZLAR.

WAGES AND FAMILY BUDGETS IN BERLIN.*

The Statistical Bureau of the city of Berlin has recently published the results of an investigation as to wages and household accounts of the poorer part of the population of Berlin for the year 1903.

The method employed in the wage investigation was that of the *enquête;* that is, a collection of the opinions of experts concerning facts instead of the collection of the facts themselves. These inquiries were begun in 1879, and have been continued annually since 1881, but not always in the same manner. In the present investigation of 1903 the 227 wage schedules used in tabulating the final results were received from employers' associations, trade-unions, and sick benefit associations. The returns cover over 350 occupations. It is not possible, says the report, to find from these replies a prevailing wage for the city, since the number of workers in each of the branches of industry investigated is not known, the census data not being adequate. The actual results of the wage inquiry are summarized as follows: The weekly wage occurring most frequently was between 22½ and 27½ marks among the skilled workers (*Beruflich ausgebildete Gesellen und Gehilfen*); between 20 and 22½ marks among male specialized laborers (*Facharbeiter*); and 10 to 12½ marks among female specialized laborers (*Facharbeiterinnen*). The yearly earnings of the skilled workers were mostly between 1,000 and 1,250 marks; of the male specialized laborers, between 1,000 and 1,250, but many also from 750 to 1,000 marks; of the female specialized laborers, between 500 and 750 marks. The best-paid workmen were the casters, stove-fitters, cutting tailors, and the foremen of the masons, carpenters, and stone-setters (1,750 marks to 2,000 marks a year).

In getting at the family accounts, the method employed was to have blanks filled out at the end of the year, regardless of whether a detailed account had been kept or not, an attempt in previous years to get a number of persons to keep accounts having failed. Of the 1,155 schedules received back (the total number given out is not known, as the sheets were sent out through trade-unions and similar organizations), 908 could be used in tabulating results. These were distributed among the various trades, as follows: 175 wood-workers; 143 metal workers; 115 building trades; 79 paper and leather; 68 printers and

*Berliner Statistik, herausgegeben vom statistischen Amt der Stadt Berlin. 3. Heft. Lohnermittelungen und Haushaltrechnungen der minder bemittelten Bevölkerung im Jahre 1903. Berlin, 1904.

artistic occupations; 45 clothing; 24 foodstuffs; the remainder miscellaneous. The 3,828 persons represented in these families lived in 1,261 rooms, making something over 3 persons to a room. The rental value was 208 marks per room. The following table shows the number of households in each class of income, and also the number having an income in addition to wages received:—

Total Income (Marks).	Total Number of Families.	Number having an Income in Addition to Wages.
Over 600–700		
" 700–800	2	1
" 800–900	4	1
" 900–1,000	6	2
" 1,000–1,100	16	10
" 1,100–1,200	25	10
" 1,200–1,300	52	31
" 1,300–1,400	90	58
" 1,400–1,500	79	45
" 1,500–1,600	94	69
" 1,600–1,700	109	83
" 1,700–1,800	100	84
" 1,800–1,900	72	58
" 1,900–2,000	55	49
" 2,000–2,100	42	39
" 2,100–2,200	38	33
" 2,200–2,300	30	29
" 2,300–2,400	24	23
" 2,400–2,500	11	10
" 2,500–2,600	17	16
" 2,600–2,700	13	13
" 2,700–2,800	4	3
" 2,800–2,900	5	5
" 2,900–3,000	6	5
" 3,000	14	13
	908	690

The following table gives the per cent. of family expenditures for various purposes, the families being classified according to number of persons:—

Size of Family . . . . (Members.)	1	2	3	4	5	6	7	8	9	10	11	12	13	All Families.
Object of Expenditure.	Per Cent. of Total Expenditure.													
I. For subsistence, (Rent, heat, light, clothing, food, carfare, tools)	74.90	76.33	78.06	80.85	80.97	83.08	84.11	85.32	84.45	86.80	89.56	86.40	88.66	80.39
II. Legally obligatory expenditures (insurance, taxes, tuition).	3.85	3.34	3.41	3.54	3.65	3.27	2.93	2.97	3.79	2.64	2.22	2.71	1.51	3.42
III. For recreation, physical and spiritual (baths, drinks, cigars, newspapers, books, amusements)	16.70	12.79	10.64	9.51	8.55	8.26	7.40	7.11	5.14	6.72	4.83	10.31	3.49	9.61
IV. Voluntary contributions (private insurance and society dues)	1.84	2.24	2.90	2.42	2.83	2.19	2.27	1.91	2.48	1.23	1.56	0.58	1.37	2.50
V. Other regular expenditures	1.00	1.01	1.06	0.76	0.82	0.77	0.99	0.61	0.66	—	0.18	—	2.56	0.87
VI. Extraordinary expenditures (sickness) furniture, moving, debts)	1.71	4.29	3.93	2.92	3.18	2.43	2.30	2.08	3.48	2.61	1.65	—	2.41	3.21
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

MUNICIPAL SANITARY REPORTS.

The Annual Report of the Commissioner of Health of the City of St. Paul for 1903 indicates, as usual, an extraordinarily low death-rate for that city, only 8.92 per 1,000 against 9.79 for Minneapolis and between 13 and 14 for Milwaukee and Detroit, its nearest rivals. The reviewer was interested to see how far these low death-rates are dependent on a special age distribution of the population, and calculated from the 1900 United States Census the death-rates for three age periods for Boston and St. Paul. The rates per 1,000 living were: under 5 years, 55 for St. Paul and 130 for Boston; from 5 to 54 years, 10 for St. Paul and 19 for Boston; and, over 54 years, 71 for St. Paul and 130 for Boston. Apparently, age distribution has little to do with the case, the difference appearing at each period, and being greatest among young children, where sanitation is of most importance. The small negro and Latin population in St. Paul is, of course, a favorable circumstance; yet, if the death records are fully kept, it would seem that the rate of 8.92 really indicates a remarkable sanitary condition. Of special diseases, tuberculosis and pneumonia are in the lead, causing, respectively, death-rates of 1.16 and 1.02 per 1,000 living, with deaths by violence, heart disease, and carcinoma in the next places. In older cities, pneumonia ranks tuberculosis, as a rule. Can this be due to more careful diagnosis? The number of births is about double the number of deaths every year in St. Paul,—a gratifying condition.

The volume entitled *Vital Statistics of the City of Chicago for the Years* 1899 *to* 1903, *Inclusive*, issued by Dr. A. R. Reynolds in 1904, makes up, to some extent, for the lack of regular annual reports from that city during recent years. It includes, practically, five separate registration reports bound up together, and shows death-rates ranging from 13.88 to 15.56 for the five years. A full table of deaths by causes, months, ages, and social condition, furnishes a good stock of statistical raw material; but the following tables might be made much more helpful by the calculation of fuller rates and ratios. Absolute numbers of deaths by years, by nativity, and by causes, are of little value without the corresponding populations. The table of age periods does include rates, and the values of 145 deaths per 1,000 under 1 year and 48 deaths per 1,000 under 5 give a fair idea of existing conditions. Nine elaborate tables for certain diseases by wards and months are scarcely worth the trouble of tabulation. On the other hand, a small table, showing the ratio of deaths from

certain causes to the total deaths, is instructive. Consumption and pneumonia are far in the lead, causing together about one-fifth of the total deaths. The relative position of the two has been reversed, pneumonia passing consumption in 1898, and exceeding it by 60 per cent. in 1902. A ratio of 6 to 8 per cent. of total deaths due to violence is extraordinarily high.

The weekly bulletins issued by the Chicago Department of Health contain much statistical material of value. For example, in the number for the week ending May 13, 1905, are tables of deaths under 5 by months for the past twenty years, which furnish a good measure of sanitary progress. Comparing the two decades 1885–94 and 1895–1904, the general death-rate has fallen from 20.2 to 15.1, and the death-rate under 5 (per 1,000 total population) from 9.5 to 5.1. The ratio of deaths under five to total deaths has steadily decreased from 49.6 per cent. in 1885 to 26.8 per cent. in 1904.

The Report of the Board of Health of the City of Manchester, N.H., for 1904 shows a much higher ratio of deaths under 5 to total deaths, 56.95 in 1902 and 47.41 in 1904. This should be a warning that some reforms are needed. The estimation of population in this city appears to cause the officials serious trouble. Estimated yearly increments brought a population of 44,126 in 1890 up to 60,000 in 1899. It had to be reduced to 56,987 in 1900, and has already leaped up to 62,000 in 1904.

The *Annual Reports of the City of Harrisburg* for 1903 form a thick volume, which contains much evidence of the political reforms which have lately made such progress in that city. Vital statistics appear, however, to be sadly neglected, although it is certain no sure sanitary progress can be made without good book-keeping. In the report of the sanitary department there is no statement even of the total population of the city; and the figures for total births and deaths have thus no significance. Turning over to a report by James H. Fuertes, C.E., on a new water supply for the city, the reviewer finds the population estimated at 55,000, and, taking this as a basis, the general death-rate for 1903 appears to be a trifle over 15. Deaths are also given for the principal contagia, showing low figures for most of them, but a high rate for typhoid fever (40 deaths, or 73 per 100,000), the inevitable result of a polluted water supply.

The Annual Report of the Registry Department of the City of Boston for the year 1903 is enlarged to include comparative statistics for the past four years; and in the next volume a summary is promised for the fifty years, 1850 to 1900. The reviewer has already pointed out (Vol. VIII of this journal, p. 289, March, 1903) that the calcu-

lation of ratios would greatly add to the value of these Boston reports. What those who are to use sanitary reports require are not crude, raw statistical material, but digested and interpreted results. For example, Table X of the Boston report occupies 28 pages, with a detailed tabulation of deaths from certain principal causes by age periods and wards, while one page for the city, as a whole, would have furnished all the information which could have any conceivable value. Table XIII exactly duplicates Table X, except that it includes only natives of Boston, and occupies 56 pages. This is merely wasteful; but the publication of ratio tables, giving the proportion which total deaths and deaths at certain age periods in the individual wards bear to the corresponding figures for the whole city, is more serious. Since the reader may easily fail to notice that ward populations vary from 13,812 to 34,982, such figures are likely to be highly misleading. Numerous small omissions are vexatious, as the lack of a total column for all seasons in Table VII, which gives deaths by months and ages, and the separation in several tables of residents, non-residents, and persons of residence unknown, without any table giving the total for all three classes. It is to be hoped that the authorities may correct these and similar deficiencies in the next report. The fifty-year summary in the forthcoming volume should be made a classic in American vital statistics by adequate scientific handling of the data involved.

As usual, the ward statistics in the appendix to the Boston report are of great interest. As a rule, ward tables, including only crude death-rates and cases of infectious disease, are of little value; but the Boston officials have worked out an original and most suggestive system of correlating these figures with racial, geographical, and housing conditions, which throws much light on the problems of the American municipality. The ward statistics in this report are compared for a four-year period, and many interesting points are brought out. In many wards "the age period in which occurred the greatest number of deaths other than under one year" has shifted since 1900 from 2–5 to one of the age periods over 50. In almost all the wards a steady decrease has taken place, both in birth-rates and death-rates. The differences between the tenement-house wards, with death-rates of 25 and birth-rates of 45, and the expensive residential districts, with both rates at about 15, the reviewer has already pointed out (l. c.).

C.-E. A. Winslow.